



# AFCTN Test Report 93-049

AFCTB-ID  
93-031



## Technical Raster Transfer



## Using

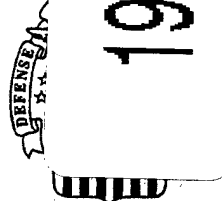
## Frontier Engineering's Data



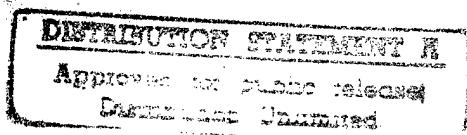
## MIL-R-28002A (Raster)



## Quick Short Test Report



12 April 1993



Prepared for  
Electronic Systems Center

DTIC QUALITY INSPECTED 3

AFCTN Test Report  
93-049

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Using:  
Frontier Engineering's Data**

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**Quick Short Test Report**

**12 April 1993**

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## 1. Introduction

### 1.1 Background

The Department of Defense (DoD) Air Force Continuous Acquisition and Life-Cycle Support (CALS) Test Network (AFCTN) is conducting tests of the military standard for the Automated Interchange of Technical Information, MIL-STD-1840A, and its companion suite of military specifications. The AFCTN is a DoD sponsored confederation of voluntary participants from industry and government managed by the Electronic Systems Center (ESC).

The primary objective of the AFCTN is to evaluate the effectiveness of the CALS standards for technical data interchange and to demonstrate the technical capabilities and operational suitability of those standards. Two general categories of tests are performed to evaluate the standards; formal and informal.

Formal tests are large and comprehensive, which follow a written test plan, require specific authorization from the DoD, and may take months to prepare, execute, and report.

Informal tests are quick and short, used by the AFCTN technical staff, to broaden the testing base. They include representative samples of the many systems and applications used by AFCTN participants. They also allow the AFCTN staff to gain feedback from many industry and government interpretations of the standards, to increase the base of participation in the CALS initiative, and respond to the many requests for help that come from participants. Participants take part voluntarily, benefit by receiving an evaluation of their latest implementation (interpretation) of the standards, interact with the AFCTN technical staff, gain experience using the standards, and develop increased confidence in them. The results of informal tests are reported in Quick Short Test Reports (QSTRs) that briefly summarize the standard(s) tested, the hardware and software used, the nature of the test, and the results.

## 1.2 Purpose

The purpose of the informal test, reported in this QSTR, was to analyze Frontier Engineering's interpretation and use of the CALS standards in transferring technical Raster data. Frontier Engineering used its CALS Technical Data Interchange System to produce data, in accordance with the standards, and delivered it to the AFCTN technical staff on a 9-track magnetic tape.

## 2. Test Parameters

Test Plan: AFCTB 93-031

Date of  
Evaluation: 12 April 1993

Evaluator: George Elwood  
Air Force CALS Test Bed  
ESC/ENCP  
4027 Colonel Glenn Hwy  
Suite 300  
Dayton OH 45431-1672

Data  
Originator: Debbie Cummings  
Frontier Engineering Inc  
P O Box 1023  
Stillwater OK 74076  
(405) 624-7731

Data  
Description: Technical Manual Test  
1 Document Declaration file  
2 Raster files

Data  
Source System:

Raster

**HARDWARE**

Unknown

**SOFTWARE**

Unknown

Evaluation Tools Used:

MIL-STD-1840A (TAPE)

SUN 3/280

AFCTN Tapetools v1.2.8 UNIX

XSoft CAPS/CALS v40.4

Texas Instruments (TI) Tapetool v1.0.1

Standards

Tested: MIL-STD-1840A  
MIL-R-28002A

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### 3. 1840A Analysis

#### 3.1 External Packaging

The tape arrived at the Air Force CALS Test Bed (AFCTB) enclosed in a box in accordance with ASTM D 3951. The exterior of the box was not marked with the magnetic tape warning label, as required by MIL-STD-1840A, para. 5.3.1.3.

The tape was not enclosed in a barrier bag or barrier sheet material, as required by MIL-STD-1840A, para. 5.3.1.2. Inspection of the tape reel showed the label indicating the recording density, as required by MIL-STD-1840A, para. 5.3.1 was missing. Some 9-track tape units require this BPI to be set manually. Enclosed in the box was a packing list showing all files recorded on the tape.

#### 3.2 Transmission Envelope

The 9-track tape received by the AFCTB contained MIL-STD-1840A files. The files were named per the standard conventions.

##### 3.2.1 Tape Formats

The tape was run through the AFCTN Tapetool v 1.2.8 utility. The tape immediately stopped with error messages being displayed. The errors are basic ANSI X3.27 errors. The fatal error was a missing ANSI label. Shown below in the error messages from the tape reader.

The tape was read using TI's Tapetool. This utility responded the same as the AFCTN Tapetool. The tape log for this tool is located in the Appendix to this report.

HDR1D001 00

Label Identifier: VOL1  
Volume Identifier: FEI101  
Volume Accessibility:  
Owner Identifier: EDCALS

---

---

Label Standard Version:

\*\*\* ERROR (ANSI X3.27; 8.3.1.1) - Columns 52-79 are reserved  
for future standardization and must be spaces.

\*\*\* ERROR (ANSI X3.27; 8.3.1.8) - The Label Standard Version  
should be 4 to represent the current level of ANSI X3.27.

\*\*\*\*\* Tape Mark \*\*\*\*\*

\*\*\* FATAL ERROR (ANSI X3.27; 6.3.2.1) - ANSI Label HDR1 missing.

In an attempt to read the tape, a basic tape dump routine  
was tried. Because of the missing tape marks this was very  
difficult. It was noted that the first Raster file had two  
CALS headers appended to the start of the data as shown  
below.

```
HDR1D001R001    00
HDR2F0204800      00
srcdocid: 8856161          00010001          dstdocid: 1840A group 4 site

          txtfilid: NONE          figid: NONE

          srcgph: NONE

doccls: NONE          rtype: 1

          rorient: 090,270          rpelcnt: 00441

6,006800          rdensty: 0200

notes: conversion to 1840 group 4 image
srcdocid: NONE          dstdocid: NONE

          txtfilid: NONE          figid: NONE

          srcgph: NONE

doccls: UNCLASS
```

---

rtype: 1

rorient: 000,270

rpelcnt: 005200,

007410

rdensty: 0200

notes: NONE

The physical structure of the tape does not meet the CALS MIL-STD-1840A requirements.

### 3.2.2 Declaration and Header Fields

One error was found in the Document Declaration file header. In file D001, an invalid change level was flagged. The error was minor and related to use of upper and lower case letters. MIL-STD-1840A, para. 5.1.1.2 states the change level as "ORIGINAL" if no changes have been made. If changes have been made then the revision, change level, and date of this document should be used. Either one or the other.

0047srcsys: Frontier Engineering, Inc  
0028srcdocid: To Be Assigned  
0018srcrelid: NONE  
0033chglvl: ORIGINAL, 8856161  
0020dteis: 19921014  
0019dstsys: UNKNOWN  
0028dstdocid: To Be Assigned  
0018dstrelid: NONE  
0020dtetrn: 19921014  
0016dlvacc: NONE  
0016filcnt: R1  
0024ttlcls: Unclassified  
0024doccls: Unclassified  
0024doctyp: Unclassified  
0045docttl: conversion to CALS group 4^^^^

#### **4. IGES Analysis**

No Initial Graphics Exchange Specification (IGES) files were included on this tape.

#### **5. SGML Analysis**

No Standard Generalized Markup Language (SGML) files were included on this tape.

#### **6. Raster Analysis**

This tape was suppose to contain two Raster images. Due to critical errors on the tape, no usable files could be extracted.

#### **7. CGM Analysis**

No Computer Graphic Metafile (CGM) files were included on this tape.

## 8. Conclusions and Recommendations

In summary, the tape from Frontier Engineering does not meet the CALS standards. The tape failed basic ANSI X3.27 procedures making the tape unreadable using the CALS systems. Other errors were noted in the headers from files generated using basic tape dump procedures.

The tape does not meet the CALS MIL-STD-1840A requirements.

## 9. Appendix A - Tapetool Report Logs

### 9.1 Tape Evaluation Log

Air Force CALS Test Network Tape Evaluation - Version 1.2; Release Number 8

Standards referenced:

ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes  
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Mon Apr 12 12:57:50 1993

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1FEI101

EDCAL5

HDR1D001 00

Label Identifier: VOL1

Volume Identifier: FEI101

Volume Accessibility:

Owner Identifier: EDCALS

Label Standard Version:

\*\*\* ERROR (ANSI X3.27; 8.3.1.1) - Columns 52-79 are reserved  
for future standardization and must be spaces.

\*\*\* ERROR (ANSI X3.27; 8.3.1.8) - The Label Standard Version  
should be 4 to represent the current level of ANSI X3.27.

\*\*\*\*\* Tape Mark \*\*\*\*\*

\*\*\* FATAL ERROR (ANSI X3.27; 6.3.2.1) - ANSI Label HDR1 missing.

Deallocating /dev/rmt0...

Tape Import Process terminated with 3 error(s), 0 warning(s),  
and 0 note(s).

## 9.2 Tape Evaluation Log, TI

Texas Instruments Tape Evaluation - Version 1.0; Release Number 1

Standards referenced:

ANSI X3.27 (1987) - File Structure and labeling of Magnetic Tapes  
for Information Interchange

ANSI X3.4 (1986) - Coded Character Sets - 7 Bit ASCII

Mon Apr 12 12:58:41 1993

ANSI Tape Import Log

Allocating tape drive /dev/rmt0...

/dev/rmt0 allocated.

VOL1FEI101

EDCAL5

HDR1D001 00

- \*\*\* ERROR (ANSI X3.27; 6.2.1) - A label shall be a record that shall have a length of 80 bytes. Each label shall be recorded within the first or only 80 byte positions of a block.
- \*\*\* ERROR (ANSI X3.27; 8.1) - Unless otherwise stated, the characters in the labels shall be coded in accordance with ANSI X3.4-1986. The 57 characters used in the labels shall be those positions of the standard code table in ANSI X3.4-1986 listed on page 13 of ANSI X3.27-1987 (errors are marked by ^ and are printed as spaces in the label if necessary).
- \*\*\* WARNING - This error will cause the software to misinterpret some of the label fields.

Label Identifier: VOL1  
Volume Identifier: FEI101  
Volume Accessibility:  
Implementation Identifier:  
Owner Identifier: EDCAL5  
Label Standard Version:

- \*\*\* ERROR (ANSI X3.27; 8.3.1.1) - Columns 52-79 of the VOL1 label are reserved for future standardization and must be spaces.
- \*\*\* ERROR (ANSI X3.27; 8.3.1.8) - The Label Standard Version should be 4 to represent the current level of ANSI X3.27.

\*\*\*\*\* Tape Mark \*\*\*\*\*

- \*\*\* FATAL ERROR (ANSI X3.27; 6.3.2.1) - ANSI Label HDR1 missing.

Rewinding tape to load point...

Deallocating /dev/rmt0...

\*\*\* ERROR - No files were found on the tape.

\*\*\* WARNING - This tape may not be an ANSI X3.27 conforming interchange.

Tape Import Process terminated with 6 error(s), 2 warning(s),  
and 0 note(s).